

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Amended) A tunable power amplifier system comprising:
 - a power amplifier;
 - ~~a ferro-electric tunable component coupled to the power amplifier;~~
 - a power amplifier output matching circuit coupled to the power amplifier, the power amplifier output matching circuit having an impedance and comprising a the ferro-electric tunable component, the ferro-electric tunable component having a ferro-electric material with an electrically tunable dielectric constant;
 - a control line operably coupled to the ferro-electric component;
 - a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;
 - wherein the ferro-electric component, responsive to the control signal, adjusts the impedance of the matching circuit.
2. (Amended) The tunable power amplifier system of claim 1, wherein the ferro-electric tunable component comprises a ferro-electric tunable capacitor.
3. (Amended) The tunable power amplifier system of claim 1 2, further comprising a substrate wherein the ferro-electric tunable component ~~capacitor is directly mechanically coupled to the substrate~~ and the power amplifier are integrated on is ~~directly mechanically coupled to the substrate~~.
4. (Amended) The tunable power amplifier system of claim 3, wherein the output matching circuit further comprises a second ferro-electric tunable component.
5. (Amended) The tunable power amplifier system of claim 4, wherein the second component comprises a tunable ferro-electric capacitor.

6. (Amended) The tunable power amplifier system of claim 1, wherein the matching circuit comprises:

a first tunable ferro-electric capacitor coupled at a first end of the first capacitor to an output of the power amplifier and to ground at a second end of the first capacitor;

an inductive element coupled at a first end of the inductor to the first tunable capacitor and to the power amplifier, and;

a second tunable ferro-electric capacitor coupled, at a first end of the second capacitor to a second end of the inductive element and to ground at a second end of the second capacitor;

wherein, the ferro-electric component comprises one of the ferro-electric tunable capacitors.

7. (Amended) The tunable power amplifier system of claim 6, wherein the inductive element comprises a lumped element inductor.

8. (Amended) The tunable power amplifier system of claim 6, wherein the inductive element comprises a microstrip.

9-11. (Cancelled).

12. (Amended) A method of tuning an impedance match of a power amplifier comprising:

generating a control signal;

coupling the control signal to a ferro-electric component, the ferro-electric component having a ferro-electric material with an electrically tunable dielectric constant;

changing an impedance of the component, responsive to the control signal;

changing the impedance match of the power amplifier responsive to changing the impedance of the component.

13. (Amended) A wireless communication device comprising:
- a battery;
 - a transceiver;
 - a user interface;
 - a housing encasing the battery and the transceiver and adapted to present the user interface external to the housing;
 - a power amplifier;
 - ~~a ferro-electric tunable component coupled to the power amplifier;~~
 - a power amplifier output matching circuit coupled to the power amplifier, the power amplifier output matching circuit having an impedance and comprising a the ferro-electric tunable component, the ferro-electric tunable component having a ferro-electric tunable material with an electrically tunable dielectric constant;
 - a control signal generator for generating a control signal;
 - a control line coupled to the control signal generator and to the ferro-electric component;
 - a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;
 - wherein the ferro-electric component, responsive to the control signal, adjusts the impedance of the matching circuit.
14. (New) The tunable power amplifier system of claim 1, wherein the matching circuit matches a natural impedance of the power amplifier to a natural impedance of a component coupled to the output of the power amplifier.
15. (New) The tunable power amplifier system of claim 14, wherein the component coupled to the output of the power amplifier is an isolator.
16. (New) The tunable power amplifier system of claim 15, wherein the matching circuit matches from about 2 ohms at the power amplifier to about 12.5 ohms at the isolator.

17. (New) The tunable power amplifier system of claim 13, wherein the matching circuit matches a natural impedance of the power amplifier to a natural impedance of a component coupled to the output of the power amplifier.
18. (New) The tunable power amplifier system of claim 17, wherein the component coupled to the output of the power amplifier is an isolator, and wherein the matching circuit matches from about 2 ohms at the power amplifier to about 12.5 ohms at the isolator.
19. (New) A method for reducing non-linear distortion in a matching circuit, the matching circuit including a ferro-electric component, the method comprising the steps of:
 - integrating the matching circuit including the ferro-electric component and a matched component on one substrate.
20. (New) A method as claimed in claim 19, wherein the matched component is a power amplifier.